UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,427	12/27/2005	Mamoru Yasuda	0388-052978	3889

28289 7590 08/09/2007

THE WEBB LAW FIRM, P.C.
700 KOPPERS BUILDING
436 SEVENTH AVENUE
PITTSBURGH, PA 15219

EXAMINER	
SAINT SURIN, JACQUES M	

ART UNIT	PAPER NUMBER
2856	

MAIL DATE	DELIVERY MODE
08/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,427	YASUDA ET AL.	
	Examiner	Art Unit	
	Jacques M. Saint-Surin	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 12/27/05 are accepted by the examiner.

Claim Objections

2. Claim 3 is objected to because of the following informalities: antecedent basis and missing words. Claim 3 recites the same plate member in line 2 wherein there is no antecedent basis for plate member in claim 1. Also, claim 3, line 3 recites "a diaphragm positioned adjacent the center" without specifying or referring to center with respect to an element. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US Patent 5,856,620).

Regarding claim 1, Okada discloses a vibration sensor (10, see: Fig. 1 and col. 9, lines 39-40) comprising a diaphragm electrode (120, see: col. 25, line 22 and Fig. 14) having weights (weight body 140, see: col. 25, line 32, a first fixed electrode (E111) and a second fixed electrode (E112) wherein the vibration sensor outputs vibration signals based on signals obtained from variations of capacitance (C1) between the first fixed (E111) electrode and the diaphragm electrode (120) and signals obtained from variations of capacitance (C2) between the second fixed electrode (E112) and the diaphragm electrode (120) (see: col. 25, lines 37-47 and 50-57). However, Okada does not disclose the diaphragm electrode having the electrodes opposed to both surfaces of the diaphragm. Note that Okada discloses all of the elements of the claim except for the arrangement of the electrodes with respect to the diaphragm. Thus, it would have been of obvious to one having ordinary skill in the art at the time of the invention to arrange the first and second electrodes on both sides of surfaces of the diaphragm electrode since the acceleration sensor would provide vibration outputs based on the variation of the capacitance between the first fixed electrode and the diaphragm and between the second fixed electrode and the diaphragm similarly as required by the claimed invention in a reliable manner. Therefore, it would have been an obvious matter of design choice since applicant has not disclosed that arrangement solves any stated problem or is for any particular purpose and as stated above, the invention would perform equally well with the arrangement of Okoda.

Regarding claim 3, Okada discloses a vibration sensor as defined in claim 1 wherein the diaphragm electrode (120) has slits (122) formed in the same plate member (121). Okada further discloses a flexible substrate having a plurality of slits is provided to constitute a diaphragm which functions as a displacement substrate and supporting means (see: col. 6, lines 25-27) and a peripheral portion of the diaphragm is secured to the sensor casing to provide a structure in which a displacement is produced in a central part of the diaphragm on the basis of an elastic deformation of the beam portions (col. 6, lines 37-42, see also col. 3, lines 42-48).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US Patent 5,856,620) in view of Imai (US Patent 4,329,547).

Regarding claim 2, Okada discloses does not disclose a first electret connected a first electret member attached to a surface of the first fixed electrode opposed to the diaphragm electrode, and a second electret member attached to a surface of the second fixed electrode opposed to the diaphragm electrode, the second electret member having a different polarization potential to the first electret member. Tamura discloses fixed electrodes 21, 22 and first and second electrets 212 and 222. A vibrating film 23 is positioned between the fixed electrodes (col. 1, lines 61-63). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Okada the electrets of Tamura because when the electrode is contact with the electret, a nonuniform air gap forms which has an average thickness of a few microns and because of attraction between electret and electrode the air gap

depends also on the degree of surface charge on the electret layer thereby, making the above combination more effective.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US Patent 5,856,620) in view of Briggs et al. (US Patent 5,404,756).

Regarding claim 4, Okada does not disclose or suggest wherein the diaphragm electrode is formed of one of stainless steel, 42 alloy, Ti--Cu alloy and Be--Cu alloy. Briggs discloses the diaphragm and at least one of the electrodes thereon is a relatively thin and generally flat plate of stainless steel (col. 8, lines 35-37). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Okada the diaphragm of Briggs because the diaphragm is sufficiently flexible to be displaced in response to variations in the pressure of fluid acting thereon to change the spacing between the electrodes to produce a signal indicative of the pressure applied to the flexible diaphragm thereby, providing a more reliable diaphragm.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Konomi (US Patent 4,516,428) discloses acceleration vibration detector.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M. Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Mondays to Fridays between 10:30 A.M and 800 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jacques M. Saint-Surin
August, 02, 2007